

**Name:** Alan H. Friedman, M.D.

**Born:** Detroit, Michigan. February 3, 1961

**Education:** Bachelor of Sciences, University of Michigan, Ann Arbor, MI, 1983  
Doctor of Medicine, Wayne State University, Detroit, MI, 1987

**Career:** 1987-88, Intern, Pediatrics, Children's Memorial Hospital, Chicago, IL  
1988-90, Resident, Pediatrics, Children's Memorial Hospital, Chicago, IL  
1990-91, Chief Resident, Pediatrics, Children's Memorial Hospital, Chicago, IL  
1990-91, Instructor, Pediatrics, Northwestern University, Chicago, IL  
1991-94, Fellow, Pediatric Cardiology, Yale University, New Haven, CT  
1994- Attending Physician, Yale-New Haven Hospital, New Haven, CT.  
1994- Assistant Professor of Pediatrics, Yale University School of Medicine.  
1994- Director, Pediatric Echocardiography Laboratory, Yale-New Haven Hospital, New Haven, CT  
1995, Visiting Consultant, King Faisal Specialist Hospital, Riyadh, SA  
1996-02 Attending Physician, Danbury Hospital, Danbury, CT  
1997, Visiting Cardiologist, St. Georges Hospital, St. Petersburg, Russia  
1997-98, Associate Director, Pediatric Residency Program, Yale University  
1998- Director, Pediatric Residency Program, Yale University, New Haven, CT  
1999- Yale Management Program for Physicians  
1999- Co-Director, Fetal Cardiovascular Center, Yale New Haven Hospital  
2000- Associate Professor of Pediatrics, Yale University School of Medicine  
2002- Associate Clinical Professor, Yale University School of Nursing  
2002- Director, Medical Education, Department of Pediatrics, Yale University School of Medicine  
2004- Associate Chair, Education, Department of Pediatrics, Yale University  
2006- Professor of Pediatrics, Yale University School of Medicine

**Board Certification:**

National Board of Medical Examiners, 1988.  
American Board of Pediatrics, Certified, 1990; Re-certified, 1997.  
American Board of Pediatrics, Certified, Sub-Board of Pediatric Cardiology, 1996; recertified, 2003.

**Professional Honors:**

Graduated Cum Laude, University of Michigan, 1983.  
Anna Rutzky Award for outstanding work in Pediatrics, Wayne State, 1987.  
Resident Teacher of the Year, Children's Memorial Hospital, 1988-1989.  
Outstanding Fellow Teaching Award, 1992-1993.  
Howard A. Pearson Pediatric Faculty Teaching Award, 1997-1998.  
Paul Harris Fellowship, Rotary International Foundation, 1998.

**Grant History:**

Medimmune, Inc. MI-CP048, A Study of the Safety, Tolerance and Efficacy of Palivizumab (MEDI-493, Synagis®) for Prophylaxis of Respiratory Syncytial Virus in children with Congenital Heart Disease. PI: Alan Friedman, M.D. November, 1999 - November, 2002.

## **Lectures, Courses:**

### CME Courses (planning and directorship):

2007, Planning Committee, Cardiology 2007, 10<sup>th</sup> Annual Postgraduate Course in Neonatal and Pediatric Cardiovascular Disease, Orlando, Florida, February 21-26, 2007

2005, Director, Yale Pediatric Update 2005: 3<sup>rd</sup> Annual CME Course for Pediatric Practitioners. Yale University Department of Pediatrics and the Yale New Haven Children's Hospital. Omni Hotel, New Haven Connecticut, September 30 – October 1, 2005.

2004, Director, Yale Pediatric Update 2004: 2<sup>nd</sup> Annual CME Course for Pediatric Practitioners. Yale University Department of Pediatrics and the Yale New Haven Children's Hospital. Hyatt Regency Greenwich, Greenwich Connecticut, May 21-22, 2004.

2003, Director, Yale Pediatric Update 2003: Practical Information for the Practitioner. Yale University Department of Pediatrics and the Yale New Haven Children's Hospital. Greenwich Connecticut, June 13-14<sup>th</sup>, 2003.

2000, Co-Director, Cardiology Y2K: Annual Update on Pediatric Cardiovascular Disease. The Cardiac Center at The Children's Hospital of Philadelphia. Orlando, Florida, February 10-13, 2000. Planned curriculum, selected international faculty, secured marketing and support for national conference which draws multi-disciplinary audience of professionals including pediatric cardiologists, pediatricians, obstetricians, anesthesiologists, nurses, nurse specialists and perfusionists. <http://www.chop.edu/cardiologyY2K/>

1997-1999, Co-Director and Planning Committee, Pediatric Cardiology Conference, Orlando, FL. Served as one of three pediatric cardiologists (along with G. Wernovsky, M.D. and A. Raptulis, M.D.) to plan the curriculum, develop syllabi, secure support, select and invite nationally recognized leaders in the field, and present the course material. This conference has grown yearly, with the 1999 attendance at 266 individuals who provide care for children with heart disease. The conference is sponsored by the Children's Hospital of Philadelphia and the Arnold Palmer Hospital for Women and Children.

- 6th Annual Update on Congenital Heart Disease, 1999. Arnold Palmer Hospital for Women and Children and the Children's Hospital of Philadelphia, Orlando, Florida, February 19-21, 1999. [http://www.orhs.org/cardiac\\_conference/](http://www.orhs.org/cardiac_conference/)

- 5th Annual Update on Congenital Heart Disease, 1998. Arnold Palmer Hospital for Women and Children and the Children's Hospital of Philadelphia, Orlando, Florida, February 7-10, 1998. <http://www.orhs.org/pedscard/index.html>

Invited Lectures:

New Stories in Pediatrics. Pediatric Conference for Practitioners, Monroe, LA April 13, 2007.

- *Long-term effects of ionizing radiation on children*

Cardiology 2007, Children's Hospital of Philadelphia, 10<sup>th</sup> Annual Postgraduate Course in Neonatal and Pediatric Cardiovascular Disease. Orlando, Florida, February 21 - 26, 2007.

- *Congenital Coronary Artery Abnormalities*
- *Debate of the Day: Work Hour Regulations are Good for Patients and Doctors*
- *Choosing the right career*

Pediatric Update, Phoenix Children's Hospital 29<sup>th</sup> Annual, Scottsdale, Arizona, February 28 – March 2, 2006.

- *Advances in Non-Invasive Cardiac Imaging in Pediatrics*
- *Acquired Heart Disease in Children*
- *Screening the Young Athlete for Cardiovascular Risk*
- *Office Cardiology for the Pediatric Practitioner*

Cardiology 2006, Children's Hospital of Philadelphia, 9<sup>th</sup> Annual Postgraduate Course in Neonatal and Pediatric Cardiovascular Disease. Phoenix, Arizona, February 8 - 12, 2006.

- *Imaging the neonate with Transposition of the Great Arteries*
- *The Digital Echo Lab – practical applications in pediatrics*
- *Long-term effects of ionizing radiation on the child with cardiac disease*
- *The Next Generation of Pediatric Cardiologists – preparing the resident and fellow for an academic life*

New England Regional Genetics Group, *Fetal Cardiovascular Malformations – Morphologic Impact of Genetic Abnormality*. Durham, New Hampshire, December 1-2, 2005.

American Academy of Pediatrics, PREP LIVE. *Evaluating and Managing Cardiovascular Disease in Children*. Washington, D.C., October, 2005

Internal Medicine Grand Rounds, *Screening High School and College Athletes for Cardiovascular Risk*. Griffin Hospital, Naugatuck, Connecticut, March 2005

Internal Medicine Grand Rounds, *The Young Athlete: Who, How and When to Screen*. Hospital of St. Raphael, New Haven, Connecticut, June, 2005

Cardiology 2005, Children's Hospital of Philadelphia, 8<sup>th</sup> Annual Postgraduate Course in Neonatal and Pediatric Cardiovascular Disease. Lake Buena Vista, Florida, February, 2005.

- *Pulmonary Atresia with Intact Septum*
- *Converting Your Echo Lab to a Digital System*
- *Resident and Fellow Training: Where are we Going?*
- *Networking for Cardiology Fellows – Plenary Session*

Cardiology 2004, Children's Hospital of Philadelphia, Annual Update on Pediatric Cardiovascular Disease. Orlando, Florida, February 24-29, 2004.

- *Sedation in the Child with Congenital Heart Disease*
- *Vascular Rings and other Abnormalities of the Aortic Arch*
- *Tetralogy of Fallot: Preoperative Evaluation*
- *Truncus Arteriosus: Imaging for Prognosis and Plan*

Yale Pediatric Update 2003: Practical Information for Practitioners. Greenwich, Connecticut, June 13-14, 2003.

- *Screening Young Athletes to Participate in Sports*

Cardiology 2003, Children's Hospital of Philadelphia, Annual Update on Pediatric Cardiovascular Disease. Orlando, Florida, February 20-23, 2003.

- *Fetal Echocardiography – Impact on Patient Outcomes*
- *What the Bedside Nurse Should Know About Echocardiography*
- *Novel Cardiovascular Therapies for the Neonate - Moderator*

Practical Office Pediatrics, Children's Medical Center – Atlantic Health System. Skytop, Pennsylvania, May 31 – June 2, 2002.

- *Screening of Young Athletes: Preparticipation Evaluation*
- *Cardiovascular Imaging in the neonate, child and adolescent*
- *Office Emergencies – Case Presentations for the Practitioner*

Russian Federation of Cardiology. *Non-Invasive Imaging in Children with Heart Disease*. St. Petersburg, Russia. May 21, 2002.

Cardiology 2002, Children's Hospital of Philadelphia, Annual Update on Pediatric Cardiovascular Disease. Orlando, Florida, February 20-24, 2002.

- *Ventricular Septal Defect: Presentation, Diagnosis and Natural History*
- *Atrial Septal Defect: Presentation, Diagnosis and Natural History*
- *Atrioventricular Septal Defect: Presentation, Diagnosis and Natural History*

Pediatric Update, Phoenix Children's Hospital 24<sup>th</sup> Annual, Scottsdale, Arizona, February, 2001.

- *Non-Invasive Cardiac Imaging in Children*
- *Computers and Cardiovascular Education: Applications for Clinical Practice*

- *Recognition of Congenital Heart Disease in the Newborn*
- *The Young Athlete: Who, How and When to Screen*

Cardiology 2001, Children's Hospital of Philadelphia, Annual Update on Pediatric Cardiovascular Disease. Orlando, Florida, February 15-18, 2001.

- *Anticoagulation in children with heart disease*
- *Cardiac Education using the world wide web*

Cardiology Y2K: Annual Update on Pediatric Cardiovascular Disease. The Cardiac Center at The Children's Hospital of Philadelphia. Orlando, Florida, February 10-13, 2000

- *Non-Invasive Techniques to Evaluate Ventricular Function*
- *Computer-Assisted Education in Pediatric Cardiovascular Medicine*
- *Coarctation of the Aorta (Moderator)*

University of Istanbul School of Medicine International Summit. Antalya, Turkey, April, 2000.

- *Diagnosis and Management of the Cyanotic Neonate*
- *Ethical Dilemmas in Pediatric Cardiology*

6th Annual Update on Congenital Heart Disease, 1999. Arnold Palmer Hospital for Women and Children and the Children's Hospital of Philadelphia, Orlando, Florida, February 19-21, 1999. Faculty presentations:

- *Tetralogy of Fallot: anatomy, physiology and clinical diagnosis*
- *Echocardiography in the Pediatric Intensive Care Unit*

5th Annual Update on Congenital Heart Disease, 1998. Arnold Palmer Hospital for Women and Children and the Children's Hospital of Philadelphia, Orlando, Florida, February 7-10, 1998. Faculty presentations:

- *Review of Cyanotic Lesions*
- *Review of Acyanotic Lesions*
- *Computers in Cardiovascular Medicine*

The Inaugural New England Pediatric Interventional Cardiac Symposium - PICS. Faculty member. The Floating Hospital for Children at New England Medical Center, Boston, Massachusetts. September 7-10, 1997

Grand Rounds: Department of Pediatrics, Norwalk Hospital, Norwalk, Connecticut. *The Utility of Echocardiography in the Pediatric Patient*. April 22, 1997.

Update on Congenital Heart Disease, 1997. Orlando Regional Medical Center, Orlando, Florida, January 22-25, 1997. Faculty presentations:

- *Fetal Echocardiography*
- *Review of Cyanotic Lesions*
- *Cardiovascular Imaging in the Toddler*

- *Review of Acyanotic Lesions*
- *Computers in Cardiovascular Medicine*

Lattanzi-Pearson Pediatric Seminars, Hospital of Saint Raphael, New Haven, Connecticut. *Non-Invasive Cardiac Imaging in Pediatrics*. October 14, 1996.

Grand Rounds, Department of Pediatrics, Bridgeport Hospital, Bridgeport, Connecticut. *Non-Invasive Cardiac Imaging in Children*. September 18, 1996.

Update on Congenital Heart Disease, 1996. Orlando Regional Medical Center, Orlando, Florida, January 24-27, 1996. Faculty presentations:

- *Coronary Arteries in the Young: Anatomy, Anomalies and Imaging*
- *Computers in Cardiovascular Education*

Grand Rounds, Department of Cardiovascular Medicine, King Faisal Specialty Hospital and Research Center, Riyadh, Saudi Arabia. *Computers in Cardiovascular Education*. November 29, 1995.

Grand Rounds, Department of Cardiovascular Medicine, King Faisal Specialty Hospital and Research Center, Riyadh, Saudi Arabia. *Transesophageal Echocardiography in Children*. November 15, 1995.

Grand Rounds, Department of Cardiovascular Medicine, King Faisal Specialty Hospital and Research Center, Riyadh, Saudi Arabia. *Echocardiography in the Interventional Catheterization Laboratory*. September 20, 1995.

Update on Congenital Heart Disease, 1995. Orlando Regional Medical Center, Orlando, Florida, January 26-28, 1995. Faculty presentations:

- *Cardiac Imaging in the Neonate*
- *Cardiac Imaging in the Adolescent and Adult*

Grand Rounds, Department of Anesthesia, Yale University School of Medicine. *Transesophageal Echocardiography in the Pediatric Patient*. December 7, 1994.

### **Professional Service:**

- Member, American Board of Pediatrics (2007-2010)
- Board Member, Rotary International, (2005-2008)
- Associate Member, American Board of Pediatrics (2004-2007)
- Editorial Board Prep SA, American Academy of Pediatrics (2003-2009)
- Dean's CME Advisory Committee, Yale University School of Medicine (2004)
- Credentialing Committee, Yale New Haven Hospital (2003-2005)
- Progress Committee, Yale University School of Medicine (N. Angoff, Chair)

CME Task Force, Yale University School of Medicine (L. Cohen, Chair)  
Graduate Medical Education Committee, Yale New Haven Hospital (R. Fisher, Chair)  
Fellow, American Academy of Pediatrics  
Associate Editor, Pediatric & Adolescent Medicine Reports  
Association of Pediatric Program Directors  
Class of 2002 Committee, Yale University School of Medicine  
Information Technology Group, Department of Pediatrics, Yale University  
Children's Clinical Research Center Committee, Yale University  
Eastern Society of Pediatric Research  
American College of Cardiology  
American Society of Echocardiography  
Society of Pediatric Echocardiography  
Journal Reviewer:  
    Critical Care Medicine, 1999 - 2003  
    Pediatric Research, 1997-99  
    Journal of Nuclear Cardiology, 2000-2004  
    Pediatric and Developmental Pathology, 2002-2005  
    Congenital Heart Disease, 2006

## **Bibliography:**

### *Original Articles*

Charles E. Canter, MD, Chair; Robert E. Shaddy, MD; Daniel Bernstein, MD; Daphne T. Hsu, MD; Maryanne R.K. Chrisant, MD; James K. Kirklin, MD; Kirk R. Kanter, MD, FAHA; Robert S.D. Higgins, MD; Elizabeth D. Blume, MD; David N. Rosenthal, MD; Mark M. Boucek, MD; Karen C. Uzark, RN, PhD, FAHA; Alan H. Friedman, MD; James K. Young, MD. Indications for Heart Transplantation in Pediatric Heart Disease. *Circulation*. 2007 Feb 6;115(5):658-76. Epub 2007 Jan 29.

Hamar B, Dziura J, Friedman A, Kleinman C, Copel J. Trends in fetal echocardiography and implications for clinical practice: 1985 to 2003. *J Ultrasound Med*, 25:197-202, 2006.

Weeks, B. and Friedman AH. Training Pediatric Residents to Evaluate Congenital Heart Disease in the Current Era. *Pediatric Clinics of North America: From Fetus to Young Adult: Contemporary Topics in Pediatric Cardiovascular Disease*. *Pediatr Clin North Am*. 2004 Dec;51(6):1641-51.

Kuhn B, Shapiro E, Friedman A. Predictors of Outcome in Children with Acute Myocarditis. *Pediatric Cardiology*, vol 25 (4):379-384, 2004.

Udink ten Cate, F.E.A., Breur J.M.P.J, Cohen M.I., Boramanand N, Kapusta L, Crosson J.E. Friedman, A.H., Brenner J.I., Meijboom, E.J., Sreeram, N. Endocardial and epicardial steroid-lead pacing in the neonatal and pediatric age-group. *Heart*, *in press*.

Pearson HA, Hostetter MK, Friedman AH. Pediatric Grand Rounds: a tribute to Norman J. Siegel, M.D. *Yale J Biol Med*. Sept-Dec;75(5-6):307-12, 2002.

Breur J.M.P.J, Udink ten Cate, F.E.A., Kapusta L, Cohen M.I., Crosson J.E., Boramanand N, Lubbers L.J., Friedman, A.H., Brenner J.I., Vetter V.L., Sreeram, N., Meijboom, E.J., Pacemaker therapy in isolated congenital complete atrioventricular block. *Pacing Clin Electrophysiol*, 2002 Dec;25(12):1685-91.

Wood JC, Magera MJ, Rinaldo P, Seashore MR, Strauss AW, Friedman A. Diagnosis of very long chain acyl-dehydrogenase deficiency from an infant's newborn screening card. *Pediatrics*. 2001 Jul;108(1):E19.

Kopf GS, Larson MS, Friedman AH, Lynch PJ, Jaffe CC: On-line educational resource for grown ups with congenital heart disease (GUCH): emphasis on imaging modalities and complex surgical procedures. *Cardiology in the Young*; Volume 11 (Supp 1), p. 191, May 2001.

Udink ten Cate, F, Breur J, Cohen M, Boramanand N, Kapusta L, Crosson J, Brenner J, Lubbers L, Friedman A, Vetter, Meijboom. Dilated Cardiomyopathy in Isolated Congenital Complete Atrioventricular Block: Early and Long-Term Risk in Children. *J Am Coll Cardiol* 2001;37(4):1129-34.

Rosenthal DN, Bulbul ZR, Friedman AH, Hellenbrand WE, Kleinman CS. Thrombosis of the pulmonary artery stump after distal ligation. *J Thorac Cardiovasc Surg* 1995 Nov;110(5):1563-5

Rosenthal DN, Friedman AH, Kleinman CS, Kopf GS, Rosenfeld LE, Hellenbrand WE. Thromboembolic complications after Fontan operations. *Circulation* 1995 Nov 1;92 (9 Suppl):II 287-93

### *Case Reports*

Chu YH, Hsiao A, Liu YH, Schneider H, Baltimore R, Friedman A. An unusual blood culture isolate in a 15-year-old boy. *Current Opinion in Pediatrics* 2001;13:75-79

Moltz KC, Friedman AH, Nehgme RA, Kleinman CS, Carpenter TO. Ectopic cardiac calcification associated with hyperparathyroidism in a boy with hypophosphatemic rickets. *Current Opinion in Pediatrics* 2001;13(4);373-375.

Wood, JC, Kopf G, Friedman, A, Giant right coronary artery fistula in a neonate. *Heart*, (In press, Spring, 2000).

Bruckheimer E, Bulbul Z, McCarthy P, Madri J, Friedman A, Hellenbrand W. Kawasaki Disease - Coronary Aneurysms in Mother and Son. *Circulation* 1998 Feb 3; 97(4): 410-11.

### *Books, Reviews, Chapters*

#### Books

Friedman, AH (medical editor). The Complete Directory for People with Chronic Illness, 2<sup>nd</sup> edition. Grey House Publishing, Lakeville, Connecticut, 2005.

Friedman, AH (medical editor). The Complete Directory for Pediatric Disorders, 3<sup>rd</sup> edition. Grey House Publishing, Lakeville, Connecticut, 2004.

Friedman, AH (medical editor). The Complete Directory for Pediatric Disorders, 2<sup>nd</sup> edition. Grey House Publishing, Lakeville, Connecticut, April, 2002.

Friedman, AH (medical editor). The Complete Directory for Pediatric Disorders. Grey House Publishing, Lakeville, Connecticut, April, 2000.

Friedman, AH and Factor, S (medical editors). The Complete Directory for People with Chronic Illness. Grey House Publishing, Lakeville, Connecticut, March, 2000.

#### Reviews and Chapters

Moltedo J, Friedman AH. Heart Disease in the Premature Neonate. In: *Fetal and Neonatal Cardiology*. Kleinman CS (ed.). W.B. Saunders Company, (in press).

Friedman AH, Kleinman CS, Copel JA. Diagnosis of cardiac defects: where we've been, where we are and where we're going. *Prenatal diagnosis* 2002; 22(4): 280-284.

Friedman AH, Copel JA. The Diagnosis of Fetal Cardiac Anomalies: current techniques, accuracy and outcomes. *Ultrasound in Prenatal Diagnosis*, January, 2000.

Copel JA, Friedman AH, Kleinman CS. Diagnosis and management of fetal heart disease. In: Fetal Medicine: Basic Science and Clinical Practice. Rodeck CH, Whittle MJ. (eds.), Churchill Livingstone, London. 1999

Copel JA, Friedman AH, Kleinman CS. Treatment of fetal arrhythmias. In: Fetal Echocardiography. Hess LW and Hess DB (eds.), Appleton & Lange, Stamford, CT, 1999

Copel JA, Friedman AH, Kleinman CS. Management of fetal cardiac arrhythmias. Obstetrics and Gynecology Clinics of North America, volume 24, no.1, March 1997.

Kleinman CS, Friedman AH, Copel JA. Fetal Echocardiography. In: Atlas of Heart Diseases, Volume 12. Edited by Braunwald, E, Freedom, R and Benson, L. Philadelphia, Current Medicine, 1996.

Friedman AH, Copel JA, Kleinman CS. Maternal Diabetes and the Fetal Heart. In: Diabetes Mellitus in Pregnancy: Principles and Practice, 2E, edited by Reece, EA and Coustan, D. Churchill Livingstone, New York 1995

Friedman AH, Copel JA, Kleinman CS. Fetal Echocardiography in the Diagnosis and Management of Fetal Structural Heart Disease and Arrhythmias. In: Diseases of the Fetus and Newborn, 2E, edited by Reed GB, Claireaux AE, Cockburn F. Chapman & Hall, London, 1995.

Friedman AH, Copel JA, Kleinman CS. Fetal Echocardiography and Fetal Cardiology: Indications, Diagnosis and Management. Seminars in Perinatology, Volume 17, no. 2, April 1993. pp. 76-88.

Friedman AH and Fahey JT. The Transition from Fetal to Neonatal Circulation: Normal Responses and Implications for Infants With Heart Disease. Seminars in Perinatology, Volume 17, no. 2, April 1993. pp. 106-121.